

General Environmental Incident Summary

Incident: 2056 **Date/Time Notice:** 9/30/2013 10:38 **DEM Incident No:**

Responsible Party: Tesoro Logistics Pipeline

Date Incident: 9/29/2013 **Time Incident:** 23:00 **Duration:**

County: Mountrail **Twp:** 158 **Rng:** 94 **Sec:** 8 **Qtr:**

Lat: 48.52467 **Long:** -102.85350 **Method:** Derived from TRS

Location Description: Pipeline leak on a 6 transmission line. Areal extent about 500 yds x 300 yds.
General land use is cultivated land. Distance to nearest water well is 0.5 miles.

Submitted By: Eric Haugstad

Affiliation: Tesoro Logistics

Address: 19100 Ridgewood Parkway

City: San Antonio

State: TX

Zip: 78259

Received By: Kris Roberts

Contact Person: Eric Haugstad
19100 Ridgewood Parkway
San Antonio, TX 78259

Distance Nearest Occupied Building: 0.5 Miles

Type of Incident: Pipeline Leak

Description of Released Contaminant: Oil

Volume Spilled: 20600.00 barrels

Ag Related:

EPA Extremely Hazardous Substance: No

Reported to NRC: Yes

Cause of Incident:

pipeline break

Risk Evaluation:

None

of Fatalities:

of Injuries:

Affected Medium: 03 - Soil

Potential Environmental Impacts:

Soils

Action Taken or Planned:

Pipeline has been isolated. Fire break is being disked in the field. A burn permit has been granted from the NDDH.

Wastes Disposal Location:

Agencies Involved: State Highway Patrol, Local Fire Department, NDDH, State Radio

Updates

Date: 9/30/2013 **Status:** Inspection

Author: Miller, Adam

Updated Volume:

Notes:

I inspected this site and the burn had already been completed. It appears that the burn was effective; there was a faint petroleum smell at the site but I could see no visible standing fluid. Burned area had been bermed in and a dirt fire break had been made around the area. The burned area was about 3 acres. I couldn't see any excavation but if 750 bbls were lost, I suspect that there will need to be soil excavation because the burned area could not account 750 bbls spilled. Follow up for this site will be necessary.

Date: 9/30/2013 **Status:** Reviewed - Follow-up Required

Author: Roberts, Kris

Updated Volume:

Notes:

Initial report came in at 00:50 this date, without volume estimate (through emergency pager system to Roberts). Release listed as contained at that time. This report gives volume and areal extent. Tesoro requested and approved for burn variance by AQ this date. Inspector in area requested to do on-site follow-up today. Call in to a Mandan Refinery contact this date for update information.

Date: 10/4/2013 **Status:** Correspondence

Author: Roberts, Kris

Updated Volume:

Notes:

13:30 - 10/4/13 , phone call from contact at Tesoro Refinery/Logistics. Stated that the pipeline had been temporarily plugged, and that draindown should be complete. From the holes dug around the pipe and nearby, it appears that there has been movement through the soil to some extent. Therefore, Tesoro has mobilized Braun Intertec to perform soil bores to determine the extent of the subsurface movement. They will arrive pm this date, and work through the weekend. We will be informed of their findings as soon as possible.

Date: 10/8/2013 **Status:** Correspondence

Author: Roberts, Kris

Updated Volume: 20600.00 barrels

Notes:

16:00 - 10-8-13, phone contact to Roberts from Tesoro Logistics contact. Soil bores have shown that lateral extent of contaminatin is 7.3 acres. At 10-12 feet below surface, there is a extensive clay layer that underlies the entire hill top. Oil loss estimate has now been raised to 20,600 barrels. 3 feet of soil thickness above the clay is saturated. Monitoring wells have been installed; 1 upgradient, and 2 down gradient, plus 1 in the down gradient direction that is completed in the aquifer underlying the 40 to 60 foot clay layer.

Date: 10/9/2013 **Status:** Inspection

Author: Roberts, Kris

Updated Volume:

Notes:

11:00 - 10/9/13 on location. Met with Tesoro Logistics personnel. Were given tour of the location. Took GPS embedded photos. Double layer of berms have been installed around the impact area. Multiple interceptor trenches have been cut and oil recovery by vacuum/SuperSucker truck has been going on 24 hours per day. As of end of visit at 13:00, 1,165 bbls have been recovered from the trenches. There is no water in the trenches, so only oil is being collected. Absorbent boom has been strung along the inside of the inner berm, and snare boom is being sought. Mobile frac tanks are being brought in to collect runoff in the event of rain. Antea Group has been retained to produce a site remediation plan., expected next week or two.

Date: 10/10/2013 **Status:** Correspondence

Author: Roberts, Kris

Updated Volume:

Notes:

10/10 and 11/13. Numerous telephone calls from various press reporters regarding the pipeline leak, containment, and time for cleanup.

Date: 10/12/2013 **Status:** Inspection

Author: Stockdill, Scott

Updated Volume:

Notes:

Arrived on location at 12:45 PM CST 10/12/2013.

- 1800 BBLS of Oil recovered so far (Estimated)
- Remediation and Recovery efforts will be switching to daylight operations only, due to decreasing oil recovery from collection trenches.
- Tesoro personnel asked about deadlines on work plans. It was recommended that they email Kris Roberts regarding that question.
- It was requested that all Survey data be sent to the NDDOH.
- It was asked if they have inspected the adjacent area of the pipeline for additional leaks. They informed me that there were two areas they were going to excavate to confirm that no additional crude left the pipeline. They said they do not expect to have any issues with the suspected areas however they were told to inform the NDDOH if they find anything at these locations.
- Planning for the upcoming winter Tesoro personnel asked about using the impacted soil to fill in the excavated pits, but not before installing a French drain and sumps to collect oil. It was recommended that they use a geo-barrier to prevent movement of impacted soil into the french drain. This impacted soil would later be removed during remediation.

Left Location at 16:59 PM CST 10/12/13.

Updated Volume:

Notes:

Arrived on site at 5:00 PM 10/14/2013.

-The old abandoned line has been removed and capped, one end of remaining gas line segment needs cap to be welded on yet.

-Plan for tomorrow is to remove section of line that leaked, relocation/rerouting will begin on Thursday.

-Rain water being collected is being stored on site in frac tanks. Tesoro is deciding whether to take the water to their refinery in Mandan or to a disposal well.

-Oil is being transported off site to the the Tioga station.

-The south end of the location is where most of the fluid recovery is taking place.

Today's numbers:

recovered oil- 50 bbls

recovered water - 300 bbls

transported oil: 360 bbls to Tioga Station

Spoke with on site Tesoro and consulting personnel.

Updated Volume:

Notes:

I met with Qualitech consultant currently in charge of operations. He indicated that the company has made a few changes to the plan for the site. A new trench has been dug on the east side of the property. A bentonite clay and cement wall structure will be placed in this trench to prevent any possible movement further to the east. They are also looking at the same trench and structure at the south side of the spill area. Numerous new test pits were dug to the east and south to explore for the oil movement. Oil was still being recovered in the furthest east trench and still to the south of pipeline. Test pits to the southeast were not showing any oil. The rain Monday did move oil into the trenches.

The area was resurveyed and a new map will be developed. The new trenches will be shown along with new proposals. A French drain system will be proposed. The new map will have everything named. The new map will be sent to the department.

Today they have recovered 290 barrels of oil, 120 barrels of rainwater, and 240 barrels of transported oil. To date 2,935 barrels of oil has been recovered.

Water samples from the monitoring wells came back clean. These results will be sent to the department. Samples from the tanks with the wastewater were sent to a commercial lab for analysis today. They are still hoping to haul this water to the refinery in Mandan.

The new section of pipe has been installed. Pressure testing for eight hours will be conducted tomorrow. A pig run was conducted on the rest of pipe line; with the data they are doing digs in areas that came back questionable.

Date: 10/17/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

6:04 p.m.

235 bbl of oil pumped; 360 bbl of oil transported; 3,170 bbl recovered to date.

The oil pipe was removed.

A couple of more test pits were dug on the southeast corner of spill, no oil was found.

Hydrotest on the new section of pipeline will done tonight.

Pig run results showed several areas to inspect. Three anomaly areas of the pipeline have been repaired. Starting another dig tomorrow.

Date: 10/18/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

10:10 a.m.

38 F

I walked the site with consultant to look at the progress of clean up and spill containment.

A second v still trench was dug to direct product into the main trench going east and west.

They were currently hauling in the cement slurry for the east wall; a total of fifty truck loads will be used.

Walked to south side of work area, two more test pits were dug and no oil was found.

The trench for the second slurry wall was currently being dug on the southwest corner. Another trench with tile will be installed on the south side of the work area.

The cutoff trench was still collecting a lot of product, this was being pumped.

The old pipe was removed and some of the soil had been removed from the area under the pipe.

The new section of pipe was being cover with sandy fill material, the last connection to the north was being done.

12:00 p.m.

I met with excavation contractor who was in charge of digging up the questionable areas of the pipeline.

Company contact took me to four sites. To date three had been repaired.

12:53 p.m.

#1 Is located along highway 40. The are repaired was the segment exiting the ground. 48.619250; - 102.775667

#3 Is located in a grain field. Two areas were repred, one at top of the hill and the other at the base of the hill. Area was covered over this morning. 48.667389; - 102.732111

2:21 p.m.

#5 They did number five first, before number four. Both are located in a pasture. The construction crew had exposed the area of concern. They showed me the dented area, which was called a clean dent. The plan was to get the pipe fixed tomorrow and started excavating site number four.

48.636583; -102.759306

Date: 10/22/2013 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

Arrived onsite at 12:30 pm, 10/22/2013, met with QualiTech and Tesoro personnel. Putting in the second slurry wall to the southwest has been delayed by sandier soil than was expected, they were only able to put in two truckloads of cement before the trench started caving in. Have postponed further construction until the trench can be widened and stabilized in that trench.

The new section of pipeline has been backfilled.

Plans are being made to install french drains onsite, they are awaiting DOH approval before construction.

3770 bbl gathered to date, 185 bbl yesterday.

Date: 10/23/2013 **Status:** Inspection

Author: Roberts, Kris

Updated Volume:

Notes:

10-23-13 - 13:00+ on location. East slurry trench in. SW slurry trench ran into problems with: 1st caving, and then ran into an old Amerada Hess well pad/reserve pit. Assessing alternatives. Small geoprobe on location and working. New chevron trenches installed on E-W interceptor trench. Hess personnel arrived to look at discovered legacy pad, and during conference call that date, Dave Glatt told Hess representative that the contamination from the old well must be removed. Total recovery to date - 3,923 bbls oil.

Also met with land owner and adjacent landowner. Tesoro will make a point of talking directly with neighbors regularly.

Date: 10/24/2013 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

Phone call with QualiTech employee, he had just finished a call with Tesoro supervisors and had these updates: Hess has agreed to cleanup old wellpad discovered, no new work has been completed/started since last update.

Date: 10/25/2013 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

Onsite at 13:57, 10/25/2013. Met with Tesoro employee, who was in a conference call, was given a tour of the site by a site worker while conference call was completed.

Was able to observe work continuing on SW slurry walls. They are benching the walls to deal with the collapses from the sandy soil, which had slowed progress. Plans are for the trenching to be completed today, and for slurry to be poured in and completed tomorrow, or at the latest on Monday. Collection tanks have been setup onsite with synthetic berms around them, north of the east trench and east slurry walls.

Talking with Tesoro employee after the call, he mentioned Hess had been onsite yesterday and this morning planning out surveying, but no update as to what Hess' plans are at this stage.

The 6 digs that were checking on anomalies uncovered by the smart pig have been completed, all anomalies were exposed and repaired as necessary, according to Tesoro employee.

Collection totals are: 80 bbl yesterday, 4113 bbl total.

Talking with QualiTech and Tesoro personnel, a letter permitting construction of the french drains has been received from the DOH.

However: a question was asked to be passed around, (e.g. DOH personnel might know) what mixture would be best to place on top of the pea gravel, (which will be placed on top of the perforated pipe of the drain) to keep infiltration constant but keep dirt from clogging the pipe? They are contemplating some mixture of dirt and manure but are unsure what mixture would be best.

Date: 10/28/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

3:14 p.m.; 25 F

Meet with company and consulting personnel. Toured the site. They have done more soil borings to better identify the areas impacted by the oil and to ensure the slurry walls are working. The slurry wall on the east side has been covered. The southwest slurry wall was installed this past Saturday. They have also decided to continue the slurry wall along the whole south side of the spill area. The contractor was almost done digging the trench connecting the two slurry walls. They have also been spreading powered bentonite to the connecting trench. Oil is still seeping into the main recovery trenches. The drain tile has been delivered to the site. There is six thousand feet of tile to be installed. The piled soils are freezing.

4,303 bbls was the total recovered up to 10/26/2013, another 100 bbls on 10/28/2013 for an approximation of 4,403 barrels recovered.

Date: 10/29/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

They were working on the slurry wall. Contractors were adding Bentonite to the slurry as it was being poured. Still are sucking up oil and water from the ditches.

Date: 10/31/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

49 F, 3:28 p.m.

The drain tile has been started. The contractors have place tile in the main trench going east. They are covering the tile with pea rock. They are hoping to have the main trench tile done in the next day. Truckers are hauling in more manure and pea rock. The contractors are moving and piling dirt around the site to create better access to trenches. The surveyer was on site getting updated data points. The geoprobing crew is on site probing looking for the plume. Over one hundred holes have been bored. Will be fencing off the site for the winter.

Date: 11/1/2013 **Status:** Inspection

Author: Espe, Brady

Updated Volume:

Notes:

38 ° F, 2:08 p.m.

Forty five barrels of oil was collected yesterday, for a total of 4,608 barrels collected. The Geoprobe Company was finishing up the current soil borings. A total of 120 borings will have been done. The Geoprobe was used on the west trench extension to ensure the slurry wall was located on the west side of the impacted area. The equipment resources were diverted to the digging of the slurry wall trench on the west side as the cement company was able to come today. They had topped off the middle of the south trench and the cement slurry was being poured into the south end of the extension trench. The slurry pouring should be finished today and the equipment will be focusing on the drain tile installation. Some of the south slurry wall trench was back filled to allow better traffic flow in the work area. The tile has been placed in the main collection trench and the chevron wings. Pea gravel was in place in the main trench except for areas were the risers will be placed. The pipeline was starting today.

Date: 11/5/2013 **Status:** Inspection

Author: Stockdill, Scott

Updated Volume:

Notes:

Arrived on location 2:30 PM CDT 11/5/13.

Tesoro is currently is the process of installing drain tile system.

Slurry wall nearly completed with the remaining 200' left on the SW corner of the location.

Geoprobe to help determine the extraction trenches in the hot zone and to help determine if there is any remaining free product.

Monitor well completed today on the east end of the location at a depth of 30' being screened between 20-30'.

Tesoro is getting ready to ship waste oil to an approved facility.

Total Recovered oil is now at 4728 BBLs.

Left location at 3:31 PM CDT 11/5/13.

Date: 11/7/2013 **Status:** Inspection

Author: Stockdill, Scott

Updated Volume:

Notes:

Arrived on location at 2:52 PM CDT 11/5/13.

-4,823 BBLS of oil recovered so far.

-Tesoro has begun extracting oil from the Drain tile with 30 bbls of the latest 55 BBLS of oil recovered coming from the trenches.

-Fencing around the area will begin on Monday the 18th of November.

-Area is beginning to flatten out with the trenches being filled in and the spoil piles being removed.

Left location 3:32 PM CDT 11/7/13.

Date: 11/12/2013 **Status:** Inspection

Author: Roberts, Kris

Updated Volume:

Notes:

11/11 and 12/2013 on location. Updated recovery volume as of 08:00 on 11/12/13 is 4,973 bbls of oil.

Working with Anteagroup technician, collected samples from 5 monitoring wells plus one duplicate at well MW-3Deep (MW-1Shallow did not have enough water to collect sample). Samples were also collected from the two farmsteads to the SE. Samples will be analyzed by the NDDoH Chemistry laboratory for volatile organic chemicals (VOCs) and Total Petroleum Hydrocarbons (TPH) as diesel range organic compounds and also for longer carbon chain compounds common for crude oil. Samples were transported to Bismarck on 11/12/13 by Shane Stockdill and Hunter Hubris of the Water Quality Division.

Plans are to install another monitoring well at the MW-1 location to better access the shallow saturated zones. It is discussed with Tesoro and Anteagroup to construct the well with a screened and sand-packed interval where the current MW-1Shallow screen is set, but with a sealed blank extending another 12 to 15 feet below the screen to establish a sampling "sump" to allow for sufficient volume for sample collection.

Most of the interception/french drain trenches have been completed, with only a couple on the S-SW side of the impact area still being worked on. Well aged manure is being mixed into the contaminated soil that is being backfilled into the trenches for the winter.

Hess Corporation has been in further contact with Tesoro regarding the old, contaminated, well location on the SE portion of the impact area.

Date: 11/15/2013 **Status:** Inspection

Author: Roberts, Kris

Updated Volume:

Notes:

11/15/13 - 12:15 on location for update. New Tesoro Rep on location currently. Recovered volume as of 08:00 this date = 5,048 bbls. 2 new monitoring wells have been installed, MW-1G and MW-5. MW-1G is nested by MW-1, total depth 35ft, screened 20-35 ft. Mw-5 is 40 ft total depth, screened 25-40 ft. All french drains completed and final backfill with contaminated soil mixed with well-aged manure is underway. Perimeter fencing will begin 11/18. One of the storm water frac tanks being shipped out today, and the other is being cleaned to ship out this weekend or Monday.

Date: 11/20/2013 **Status:** Correspondence

Author: Roberts, Kris

Updated Volume:

Notes:

11/20/13 - 15:00 conference call with Tesoro and consultants.

1) Oil recovery volume as of 08:00 11/20 = 5,153 bbls.

2) DoH and Tesoro analytical results on most current sampling round confirm low concentration detects of organic compounds in wells sampled. However, DoH chemists state that the detects are not petroleum, rather other organic chemicals that fall within the detection range of organics compounds in diesel fuel.

3) Forensic lab contracted by Tesoro has completed analyses, detailed report of detected compound identification and significance should be received early next week.

4) Site fencing is progressing, and should be completed shortly. When done, gate will be locked, and personnel will no longer be manning site daily. DoH visits will need to be coordinated with Tesoro or QualiTech for access. Likely periodic conference calls will be sufficient.

5) DoH suggested and approved reduction in trench pumping activities from daily, based on reduced trench yield. Tesoro agrees, but will continue daily for a few more days before reducing to every 2-3 days as recovery indicates.

6) Remedial Alternatives report for early January will be succinct, using spreadsheet of alternatives, short descriptions, pros and cons, and short list of likely alternatives under final consideration.

Alternative choice and work plan requested by early February, 2014.

Date: 11/20/2013 **Status:** Inspection

Author: O'Gorman, Brian

Updated Volume:

Notes:

Arrived on location 11/20/13 at 12:55. Met with a representative from consulting firm. Observed Site and took photographs. At the time of inspection all the trenches had been filled and were available for product retrieval via two inch pvc piping that extended vertically above the soil surface from the underground drainage system where a vac truck could attach a hose and extract product from the trench. According to the rep, 59 risers (PVC pipes) were available for product removal along the trenching areas. The company was in the process of making a table to calculate the best retrieval process according to which risers were producing and when. At the time of inspection, another contractor was in the process of drilling two additional monitoring wells upgradient of the release. These wells were going to be screened at 105 - 120' and 55' to 60'. PID analysis was conducted on the drillings at 5' intervals to 80' and at 10' intervals to 140' at a similar location to the wells placed northwest of the release. The fencing around the perimeter of the Site was approximately 1/4 completed and contractors were on-site continuing with the fence at the time of inspection. The representative also noted that they were in the process of removing the trailers from the Site in the next week or two.

Date: 5/8/2014 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

5/8/2014 at 16:45, on location. Checking on progress of cleanup; met with Qualitech supervisor to discuss developments. Fence around site is complete. Currently, borings are being done to delineate impacted soil beyond the slurry walls. According to the supervisor, current borings show impact to soil is only detected ~10 yards beyond the walls. A thermal desorption unit is planned to be installed next week to begin remediation of soils on site.

Date: 6/11/2014 **Status:** Inspection

Author: Stockdill, Scott

Updated Volume:

Notes:

Scott Stockdill and Russell Martin on site at 12:16 6/11/14.

NDDoH inspectors, NDSU research staff and the landowner toured the soil-burning facility. The facility, which had been on line since June 9, is operating as planned and burning the soil at a rate of 40 tons/hr. The goal is to operate at roughly 1000 tons/day, with the contract set at 192,000 tons. The soil is entering the soil-burning plant with a TPH level of 40,000-50,000 ppm and exiting the plant at 500 ppm TPH.

More followup is necessary to ensure the operation is going smoothly.

Date: 7/10/2014 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

7/10/2014 at 13:45, on location. Met with site personnel to check on progress. Excavation is ongoing. Due to detection of oil between the two sets of monitoring wells on the east side of the site, plans are being discussed on best way to extend the fence around the contaminated area and reroute the access road on the east side of the site. The contaminated ground is beneath the current access road's location, and extending the excavation will take that area out. The remediated soil is accumulating on site. Personnel are piling it on site for eventual placement back into the pit being excavated once testing shows the pit walls and floor are clean and the piles of soil meet NDDoH approval to be used as fill. Personnel on site would like to add a second remediation unit to double the amount of soil being remediated; however, this decision has not yet been made. Room is running out for more piles of remediated soil on site. Additional discussions on where to place additional soil piles are taking place.

Date: 8/15/2014 **Status:** Inspection

Author: Suess, Bill

Updated Volume:

Notes:

Met with Warren Nelson (Nelson Environmental) and Sean Daly (QualiTech) to review site. According to Mr. Nelson, approximately 60,000 tons of soil have been excavated and 40,000 tons have been processed. Groundwater (perched) was encountered at the bottom of the excavation (approximately 40 feet) on top of a layer of hard clay. Free product was visible on the water surface. Mr. Nelson has requested both excavation and cleanup standards for the site. He is currently treating the soils to 100 ppm TPH.

Date: 9/9/2014 **Status:** Inspection

Author: Wax, Pete

Updated Volume:

Notes:

On site 14:00, off site 14:20, northwest wind at 15+, overcast, 45 degrees. Operation in full swing. No change in operation. Have treated 55,207 tons of soil. Soil treated to an average of 80 ppm TPH, all less than 100. Waiting on final criteria.

Date: 9/19/2014 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

9/19/2014 at 9:42, on location. Met with site personnel. Excavation of east pit continuing with only a few more feet of eastward excavation left, with the wheel tractor-scrapers on site capable of removing 10,000 yards of impacted soil under ideal conditions. Soil is then stockpiled to the west of the excavation, where a tractor discs the excavated soil. This results in a more blended mixture for the remediation unit. Piles of remediated soil still on site awaiting final plan and approval to be placed back in the finished part of the excavation. Larger stones dug up will be cleaned and used as landscaping by the landowner; smaller stones will be cleaned and used as fill. Old concrete containment wall has been dug up and placed in a pile on the western-most edge of the site; they have been verified clean. Decisions still being made on what to do with the pieces. Second remediation unit will be on site in a few weeks, with startup to full operation taking about a month after tuning in the machine.

Date: 10/16/2014 **Status:** Inspection

Author: Wax, Pete

Updated Volume:

Notes:

On site 9:00, off site 9:45. Light rain, wind south at 15 mph, 45 degrees. Site has expanded to the south. Operation is progressing with no troubles. Have treated 86,500 tons to date. Treating approximately 1000 tons a day.

Date: 10/23/2014 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

10/23/2014 at 16:09, on location. Met with site personnel and toured site. East excavation has been sampled, and results are back on all samples except one. All samples that are back tested clean. Once last sample tests clean, then backfilling of the east pit will proceed with remediated soil on site. Main connected to east pit is still being excavated; currently estimated at 32-ft deep with another 6-8 ft to be removed. Excavating ~1000 tons a day. They are still mixing the impacted material to provide a homogenous flow for the remediation unit, and the piles of remediated soil are growing. The site is running out of room. The second planned remediation unit has not been placed on site as there is no room. Should gain more room once backfilling of the east pit begins. Area next to first remediation unit being blocked off; it will have a liner and rig mats under it. This area will be used to do oil changes and lubrication/greasing of equipment.

Date: 11/20/2014 **Status:** Inspection

Author: Roberts, Kris

Updated Volume:

Notes:

11/20/14 - 14:30 location update visit. Additional acreage to east is leased to store treated material, which has been moved from an area being cleared for a second thermal desorption unit (TDU). SW delineation excavation down to 32 feet depth, with an additional 4 feet of depth anticipated. Throughput is now averaging 800 tons per shift = 1,600 tons per day.

Hess has initiated some type of project to the SW of the fenced area. Onsite personnel believe that they are removing old, abandoned pipeline and some type of battery location. May also be working on the salt impact area identified by the Jensons. Eighth (8) large piles of excavated (?) soil in various location so the SW of the Tesoro fenced area. No activity, however, this date.

Date: 12/3/2014 **Status:** Inspection

Author: Martin, Russell

Updated Volume:

Notes:

12/3/2014 at 14:05, on location. Met with site personnel. While further excavating east pit, a sand lens was encountered. Water was found within the sand with volatiles present. Extent of sand unknown, but sand was not encountered in SW pit. Current work involves excavating sand until water accumulates, letting the water freeze, removing the ice, and then repeating the process. Company will continue work excavating and determining the extent of the sand lens.

Work in SW pit continuing; stained soil was found up to western fence line. Work outside of the fence line requires a "one call," which has been made. Once the one call is complete, work will begin past the fence line. It is unknown how far out the stained soil extends in this direction.

Area for second TDU being graded and smoothed out next to the first unit to the west.

Oil-changing area finished and enclosed on other side of first unit to the east.

Date: 1/21/2015 **Status:** Inspection

Author: Suess, Bill

Updated Volume:

Notes:

Tesoro began sonic drilling to delineate SW excavation area on 1/13/15. Recent weather has slowed delineation. One boring was also placed in the "gun barrel" to delineate the sand lens in the excavation bottom. Additional borings have been planned. Assembly of the second TDU began on 1/14/15 and is proceeding. Tesoro is in communications with Hess to have a second gas meter installed.

No excavations have occurred due to icy conditions at the site. TDU treatment is proceeding.

Tesoro estimates that they have enough stockpiled material to keep the TDU running for 16 weeks.

To date, 138,344 tons of impacted soil have been treated.

All concrete rubble (slurry wall) has been removed to the site. Knife River will recycle the material.

Date: 6/21/2016 **Status:** Inspection

Author: Souder, Taylor

Updated Volume:

Notes:

I arrived on location at 1100. Two composite soil samples were at Hess's clean soil pile. One was taken on the north side (1130) of the pile and the other to the south (1135). Samples were taken to the lab on Friday 6/24.

Date: 6/23/2016 **Status:** Inspection

Author: Suess, Bill

Updated Volume:

Notes:

Have made bi-weekly inspections of the site throughout the first half of 2016. The "gun barrel" and the "gun handle" areas have been excavated and backfilled. The majority of the stockpile over the "chamber" area has been treated. The site was shut down for approximately two weeks as Tesoro renegotiated the contract with its consultant. Remediation restarted on 6/15/2016.

Excavation has begun on the Hess portion of the site. Earth Systems (Hess consultant), Antea (Tesoro consultant), and the NDDoH are collecting confirmation samples from the base and sidewalls of the excavation, as well as from the "clean" stockpile at the site.